WHAT IS CLAIMED IS:

1. A flexible stent for implantation in a body lumen and expandable from a contracted condition to an expanded condition, comprising:

a plurality of adjacent cylindrical elements which are expandable in the radial direction and arranged in alignment along a longitudinal stent axis;

the cylindrical elements formed in a serpentine wave pattern transverse to the longitudinal axis and containing a plurality of alternating peaks and valleys;

at least one interconnecting member extending between adjacent cylindrical elements and connecting them to one another;

at least one reinforcing member extending across a width of the alternating peaks and valleys;

the serpentine pattern containing varying degrees of curvature in regions of the peaks and valleys adapted so that radial expansion of the adjacent cylindrical elements is substantially uniform around their circumferences during expansion of the stent from its contracted condition to its expanded condition.

2. The stent of claim 1, wherein the stent further comprises at least one reinforcing member extending across a width of each of the alternating peaks and valleys.

3. The stent of claim 1, wherein the interconnecting member connects a valley of one cylindrical element with a valley of an adjacent cylindrical element.

4. The stent of claim 1, wherein the interconnecting member connects a reinforcing member of a

valley of one cylindrical element with a valley of an adjacent cylindrical element.

5. (1) The stent of claim 3, wherein the interconnecting member is unitary with the valley of one cylindrical element and the valley of the adjacent cylindrical element.

6. The stent of claim 1, wherein the reinforcing member is curved opposite to the respective peaks and valleys.

7. The stent of claim 1, wherein the alternating peaks and valleys are further comprised of straight-length struts intersecting at an angle, and wherein the reinforcing member engages the intersecting struts at bend points.

8. The stent of claim 7, wherein each bend point is a portion of the strut having reduced material to facilitate bending.

9. The stent of claim 1, wherein the alternating peaks and valleys are further comprised of elongated straight-length struts intersecting at an angle, and wherein the reinforcing member engages the intersecting struts at bend points of the elongated struts.

10. The stent of claim 1, wherein the reinforcing member is comprised of a first quarter turn that transitions into a half turn, which transitions into a second quarter turn.

11. The stent of claim 1, wherein an intersection of the reinforcing member and the peaks and valleys is rounded.

12. The stent of claim 1, wherein an intersection of the reinforcing member and the peaks and valleys is angular.

13. The stent of claim 1, wherein the reinforcing member is further comprised of an enlarged area integrated into the peak and valley.

14. The stent of claim 1, wherein the reinforcing member is further comprised of an enlarged area integrated into the peak and valley having slits therethrough.

15. The stent of claim 1, wherein said stent is formed of a biocompatible material selected from the group consisting of stainless steel, tungsten, tantalum, super-elastic NiTi alloys, and thermoplastic polymers.

16. The stent of claim 1, wherein the stent is formed from a single piece of tubing.

17. The stent of claim 1, wherein the stent is coated with a biocompatible coating.

18. A longitudinally flexible stent for implanting in a body lumen and expandable from a contracted condition to an expanded condition, comprising:

a plurality of adjacent cylindrical elements which are independently expandable in the radial direction and arranged in alignment along a longitudinal stent axis;

the cylindrical elements formed in a serpentine wave pattern transverse to the longitudinal axis and containing alternating peaks and valleys;

at least one interconnecting member extending between adjacent cylindrical elements and connecting them to one another;

a reinforcing member extending across each peak and valley; and

the serpentine wave pattern configured in size and shape so that the cylindrical elements generally expand in a uniform manner around their circumferences during expansion of the stent from its contracted condition to its expanded condition.

19. The stent of claim 18, wherein within a single cylindrical element, the serpentine wave pattern includes a sequence containing a peak, a valley, a peak, a valley, a valley, and a peak.

20. The stent of claim 18, wherein said at least one interconnecting member connects a valley of one cylindrical element with a valley of an adjacent cylindrical element.

21. The stent of claim 18, wherein the stent is formed of a biocompatible material selected from the group consisting of stainless steel, tungsten, tantalum, super-elastic NiTi alloys, and thermoplastic polymers.

22. A method for constructing a flexible stent for implantation in a body lumen wherein the stent is expandable

from a contracted condition to an expanded condition comprising the steps of:

providing a plurality of adjacent cylindrical elements which are independently expandable in the radial direction and arranged in alignment along a longitudinal stent axis;

forming the cylindrical elements in a serpentine wave pattern transverse to the longitudinal axis and containing a plurality of alternating peaks and valleys;

providing at least one interconnecting member extending between adjacent cylindrical elements and connecting them to one another;

providing at least one reinforcing member extending across a width of the alternating peaks and valleys; and

wherein the irregular serpentine pattern contains varying degrees of curvature in regions of the peaks and valleys adapted so that radial expansion of the adjacent cylindrical elements is substantially uniform around their circumferences during expansion of the stent from its contracted condition to its expanded condition.

23. The process of claim 18, wherein the process further comprises the step of connecting the interconnecting member between a valley of one cylindrical element with a valley of an adjacent cylindrical element.